An Alternate Means of Maintaining Part 135 Weather Safety Standards, and the Criteria Necessary for a Practicable Flight Information Service (FIS) Weather Support Concept

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Research Approach

- Historical Perspective of Weather Data, Communications and Services from 1978 to the Present.
- FAA Part 135 Operator Needs Assessment.
- FAA Part 135 Common Relief Criteria Investigation.
- A Concept of Operations Model for Aviation Weather Information Implementation for the Evolving NAS.
- Make Conclusions and Recommendations.

Operational Enhancements Achieved Since 1978

- Reliability has been Greatly Enhanced in the area of Weather Detection and Short-Term Forecasting (0-1 Hour Range).
- Reliability has also been Improved for Long-term Forecasting and Climate Prediction.
- Aviation Weather Services have been Greatly-Improved for both Pre-Flight and In-Flight Aviation.
- Access to Aviation Weather Services has Greatly Expanded (AFSS, EFAS, HIWAS, TIBS, PATWAS, FISDL, Internet, Television Weather, etc.).

Operational Enhancements Continued

- Aviation Weather Tools (Products, Decision-Aids, Data, etc.) have Greatly-Improved and are still Improving.
- However, Forecasting for the 1-6 Hour Range has Achieved Very Little Improvement.

FAA Part 135 Operator Needs Assessment (GTRI)

- At Present, Operators Do Not Have a High Percentage of Flights to Airports Without Weather-Reporting Capability.
- Part 135 Operators Express Strong Opinion that they Should Be Authorized (as Part 91) to Fly to these Airports.
- Most Part 135 Operators Needing Access to Non-Reporting Airports are based in the Remote Southwest and Upper Midwest Areas of the Country.

Needs Assessment-Continued

- The Report also Concludes that GPS WAAS and LAAS Approaches will make More Non-Reporting Airports Available that Part 135 Operators will Desire to Access.
- Fractional Ownership Operators have established a Good Safety Record conducting Part 135-Type Operations, and the FAA has Proposed an NPRM to Classify Fractional Ownership Programs as 91K Operations. Part 91K and Part 135 will be Authorized to Conduct IFR Flights to Non-Reporting Airports.

FAA Part 135 Common Relief Criteria Investigation (RTI)

- Relief Not Authorized For Part 135 Operations
  - Certificate of Waiver
  - Certificate of Authorization
- Relief Granted In Operations Specifications
  - Deviations (Data Not Available to Investigation)
- Exemptions To Rules
  - In 13 Years only 3 Granted and 2 Partially Granted

Relief Criteria Investigation (Continued)

- FAA Requirements for Rule Change or Exemption
  - Compelling Argument with Scientific & Technical Data presenting how change is in the Public Interest.
  - Reasons why Granting Change would not Adversely Affect Safety, or how it would provide at least an Equal Amount Of Safety.
- A Rule Change such as the Part 91K/135 NPRM will be Required to Grant Relief concerning Part 135 Weather Requirements.

Developing a Model for Aviation Weather Information Implementation

Toward a Concept of Operations for Aviation Weather Information Implementation in the Evolving National Airspace System

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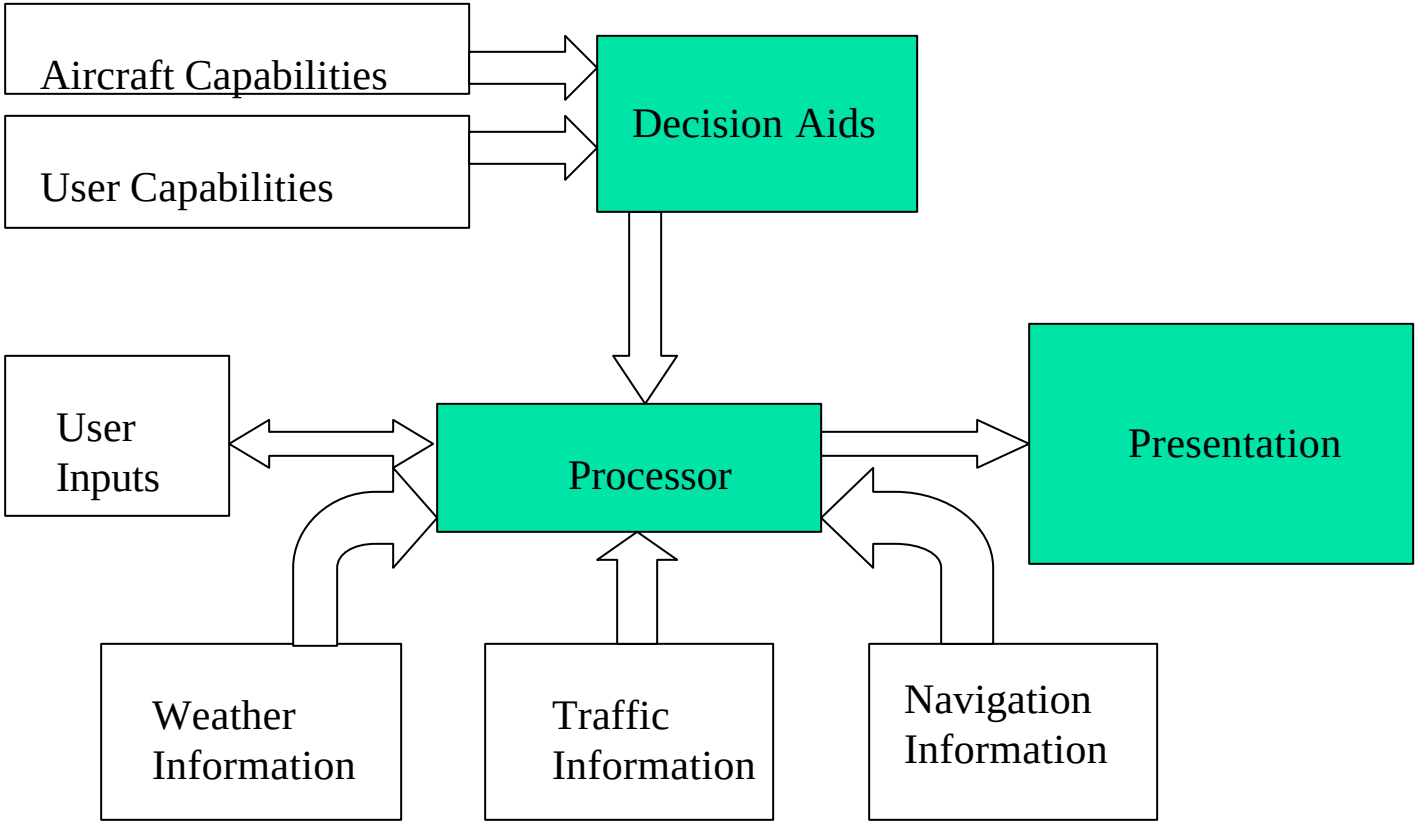
Operator Support System Components



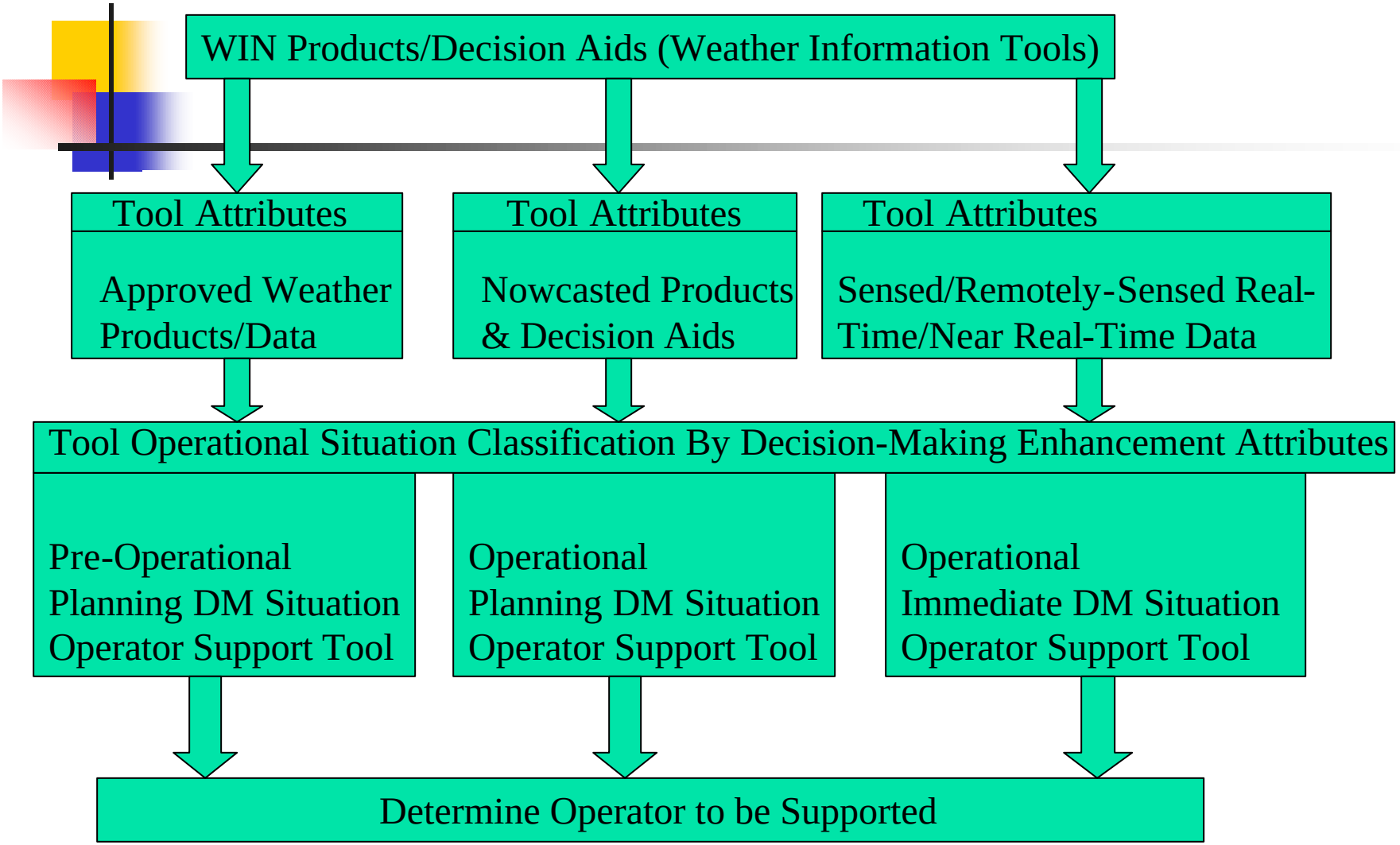
Premises

- Aviation Weather Information is a Subsystem of the National Airspace System (NAS), and Weather Information Tools must be implemented according to a Systems Approach to the Whole NAS.
- Weather Information Tools will be used in 3 different Decision-Making Situations: (1) Preoperational Planning, (2) Operational Planning, and (3) Immediate.
- Weather Information Tools are used in 2 different Decision-Making Conditions:
  (1) Autonomous, and (2) Collaborative.

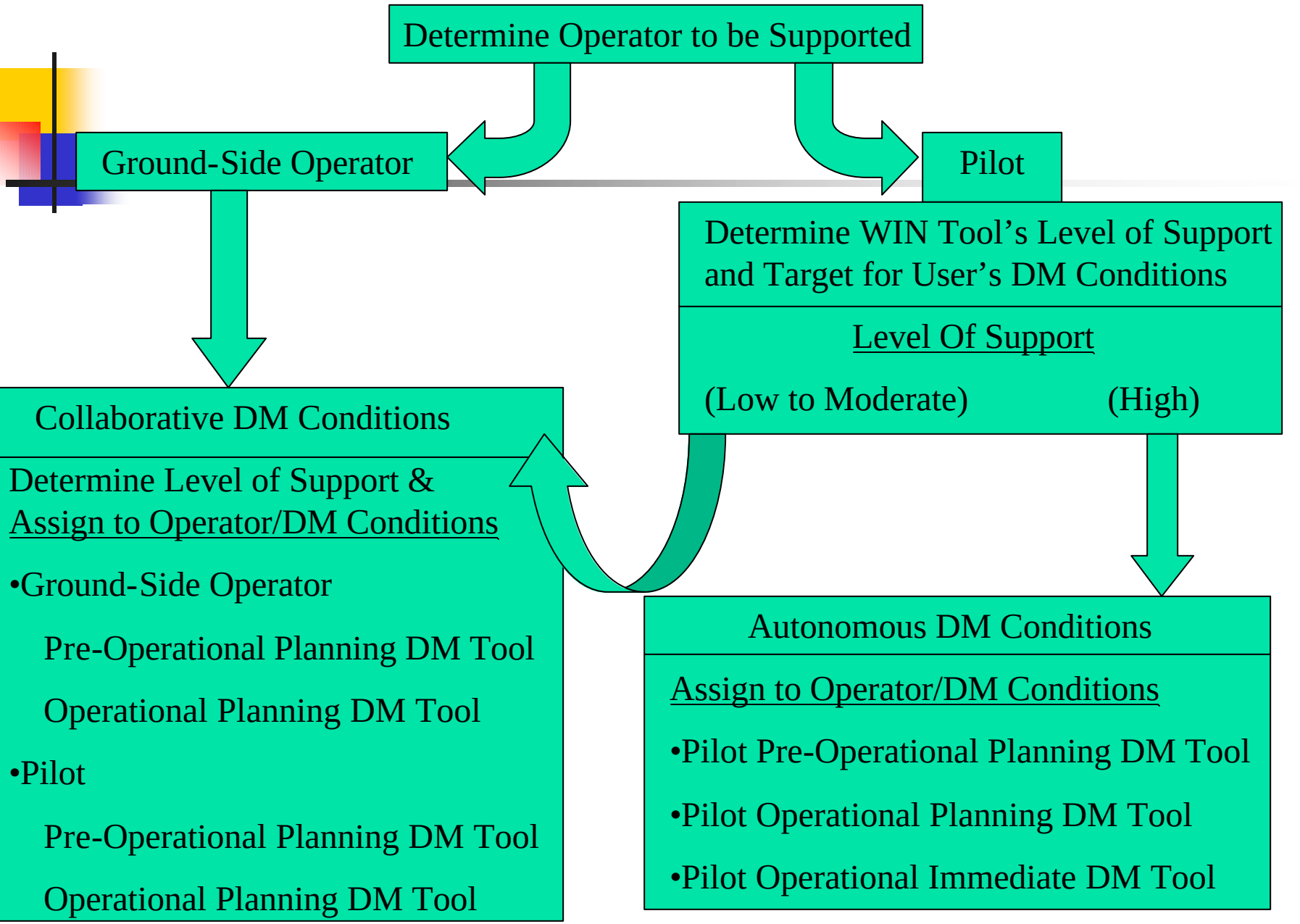
WIN Classification by Operational Decision-Making Situation

Pre-operational Planning Decision-Making Situation	Any Approved Aviation Weather Products/Decision Aids
Operational Planning Decision-Making Situation	Nowcasted Aviation Weather Products and Decision-Aiding Products/Devices
Operational Immediate Decision-Making Situation	Directly-Sensed Weather Data (Real-Time/Near Real Time)

Model for WIN Implementation



Model Continued



Problems With Collaborative Decision Making

- FAA Collaboration Models do not include AFSS/EFAS Facilities.
- FAA Plans indicate Pilots will Collaborate with Controllers over Weather Avoidance.
- Flight Watch EFAS Positions need additional Discrete Frequencies because of Frequency Congestion.
- EFAS Positions also need Integrated Aircraft/Weather Displays.

Recommendations

- The Regulation of Fractional Ownership Programs and On-Demand Operations NPRM should be Approved.
- Aviation Weather Information Tools should be implemented according to a Systems Approach to The Whole NAS.
- Part 91K and Part 135 Operators should be Encouraged to take advantage of FISDL Services, and Users should receive FISDL/CDM Training.
- In-Flight Weather Service Providers should be provided with Integrated Aircraft/Weather Situation Displays, and Flight Watch Stations should be provided with Additional Discrete Frequencies.